

AMENDMENTS TO THE CLAIMS

1. (Original) A method comprising:
fetching coordinate data for a pixel to be rendered;
fetching texel values corresponding to the pixel;
filtering the texel values through a programmable filter; and
outputting a filtered texture value for the pixel.
2. (Original) The method of Claim 1 wherein filtering texel values comprises:
reading a control register; and
using at least one location specified in the control register as a source location.
3. (Original) The method of Claim 1 wherein fetching coordinate data comprises:
retrieving X, Y, Z coordinate data from a vertex pipeline.
4. (Original) The method of Claim 1 further comprising:
writing coordinate fraction data to a plurality of registers.
5. (Original) The method of Claim 1 wherein outputting comprises:
writing the filtered texture value to a register; and
signaling a processor that the filtered texture value is available.
6. (Original) An apparatus comprising:
a fragment processing module;
a programmable texture filtering module in communication with the fragment processing module to programmably filter texture data corresponding to at least one pixel; and
a frame buffer processing module to combine filtered texture data with an existing frame buffer.
7. (Original) The apparatus of Claim 6 wherein the programmable texture filtering module comprises:
a plurality of control registers;
a plurality of source registers;
a plurality of temporary registers; and
at least one output register.

8. (Original) The apparatus of Claim 7 wherein the source registers are read only.
9. (Original) The apparatus of Claim 7 wherein the plurality of control registers comprises:
 - a status register;
 - an address register;
 - an offset register; and
 - a plurality of fraction registers.
10. (Original) The apparatus of Claim 7 where the plurality of the control registers comprise:
 - at least one sampling register have a bit corresponding to each of the source registers to indicate if sampling of a corresponding source register is required.
11. (Original) The apparatus of Claim 6 wherein the programmable texture filtering module comprises:
 - a plurality of processing cores to execute an instruction set.
12. (Currently Amended) The apparatus of Claim ~~6~~11 wherein a subset of the plurality of cores are to execute a filtering program on at least one pixel in parallel.
13. (Original) A system comprising:
 - a memory,
 - a plurality of texture processing cores (TPC) coupled to the memory to programmably filter texture data;
 - a fragment processing module to apply the filtered texture data to at least one fragment; and
 - a display to display an image created using the at least one fragment.
14. (Original) The system of Claim 13 wherein the plurality of TPC and the fragment processing module are integrated with a host processor.
15. (Original) The system of Claim 13 wherein the plurality of TPCS and the fragment processing module reside in a graphics coprocessor.

16. (Original) The system of Claim 13 comprising:
a register set associated with each TPC of the plurality.

17. (Original) The system of Claim 15 further comprising:
an accelerated graphics port coupling the graphics coprocessor to the memory.

18. (Original) A computer readable storage media containing executable computer program instructions which when executed cause a digital processing system to perform a method comprising:

- fetching coordinate data for a pixel to be rendered;
- fetching texel values corresponding to the pixel;
- filtering the texel values through a programmable filter; and
- outputting a filtered texture value for the pixel.

19. (Original) The computer readable storage media of Claim 18 which when executed cause a digital processing system to perform a method further comprising:
reading a control register; and
using at least one location specified in the control register as a source location.

20. (Original) The computer readable storage media of Claim 18 which when executed cause a digital processing system to perform a method further comprising:
retrieving X, Y, Z coordinate data from a vertex pipeline.

21. (Original) The computer readable storage media of Claim 18 which when executed cause a digital processing system to perform a method further comprising:
writing coordinate fraction data to a plurality of registers.

22. (Original) The computer readable storage media of Claim 18 which when executed cause a digital processing system to perform a method further comprising:
writing the filtered texture value to a register; and
signaling a processor that the filtered texture value is available.

AMENDMENTS TO THE SPECIFICATION

IN THE DRAWINGS

Applicant submits a proposed amendment to Figure 1 for approval by the Examiner in accordance with 37 CFR 1.84. The replacement drawing is submitted on a separate sheet attached to this Response.

IN THE SPECIFICATION

Please replace paragraphs 11, 17 and 19 with the following:

[0011] Vertex processing module does three-dimensional transformations on 3D positional data conveyed, and may, for example, ~~applies~~apply lighting. The processed vertices are passed to the primitive assembly module, which receives connectivity data. The connectivity data may include indices to permit assembly of primitives, typically triangles, based on the vertices and indices received.

[0017] Figure 1B is a diagram of texture sampling in one embodiment of the invention. In one embodiment, sixteen source registers are provided. With each register corresponding to one texel in a 4 X 4 grid surrounding the T_uT_v sampling location of the texture sample point and would correspond to pixels addressed in such a fashion. While T_uT_v maps to a location between texels 5 and 6 and texels 9 and 10, the contribution of the sixteen texels in the patch to the texture value assigned to T_uT_v may be defined by the texture filtering program. In some embodiments, only texels 5, 6, 9 and 10 provide a contribution. In other embodiments, all sixteen texels may contribute. In still other embodiments, all diagonal ~~pixels~~pixels in the group may contribute. As illustrated, the programmable nature of the texture filtering module permits robust and flexible texture filtering options.

[0019] The actual filtering may be performed by the texture filtering module 130 by loading a desired filtering program into a textured processing core. The filtering program corresponds to a

fragment to be processed. Within a region of an image, it may be desirable to apply various effects to the texture data accordingly. Thus, for a particular graphic image, there may be numerous filtering programs employed. For example, the filter program applied to a shiny part of a leather jacket on an image would likely to be different than the filter program applied to a scuffed part of a leather jacket. By using different programs in the texture filter module, the different effect can be accommodated. The usage of several filter programs during the course of rendering a given scene image is analogous to how, under the current-day fixed-function schemes, the rendering of a given scene may involve switching between the different fixed-function filtering states for different parts of the scene.